

Remarks

Claims 1, 3, 4, 14, 15, 20, and 22 are amended. Claims 2 and 19 are cancelled.

Claims 1-2, 8-14, 19, and 25-29 stand rejected under 35 U.S.C. §103(a) as being unpatentable over '683 to Childs et al. The rejection is overcome by amendment.

Independent claims 1 and 14 are amended to recite "a solar panel for collecting solar thermal energy in a fluid," and that the boiler is "in communication with said panel, wherein thermal energy is transferred in said boiler from said fluid to vaporize a low-boiling point working fluid, whereby said boiler" outputs a pressurized working fluid vapor. Claims 1 and 14 also are amended to include all the limitations of claims 2 and 19, respectively, so that the fundamental invention includes "an hydraulic motor in operable connection with" a pump "and responsive to the pressure of the pressurized brine, wherein the hydraulic motor imparts an augmenting motive force to the pump."

The apparatus of '683 to Childs et al. uses the solar energy concentrator (18 in Fig. 5, 50 in Fig. 6) *that directly heats the working gas, which working gas then drives the hydraulic unit.* See, e.g., Childs et al., col. 7, lines 61-66, col. 8, lines 29-52. In marked contrast, in the present invention as claimed in amended claims 1 and 14, the solar collector *does not* boil the water that flows through it. Rather, in the present invention, the solar energy collector heats (but does not boil) a fluid, which then flows to the boiler where its heat is used to boil a low-boiling point working fluid at high pressure. The high-pressure vapor then flows to the hydraulic unit.

The foregoing distinction is important, in that it allows the present invention to use inexpensive water to flow through the solar collector, and the heated water can then be used to boil a refrigerant. Childs et al.'s device requires sufficiently high temperature to boil the working fluid *in the solar collector.* See especially Childs et al. Fig. 6 (which is why the device requires the trough "concentrator" 50. Were Childs to use a low boiling-point liquid at the collector 50 (which Childs et al. nowhere explicitly suggest), the device would demand: (1) a large quantity of expensive fluid (e.g. a refrigerant) that would have to be pumped out to a large field of solar concentrators; and (2) expensive strong pipes in the concentrator assembly to contain the high pressure of the boiled vapor. In the present invention, the collector output pipe 40 can be an inexpensive, comparatively low-pressure pipe.

Independent claims 1 and 14, as amended, thus are allowable over the disclosure of '683 to Childs et al. Claims 2 and 19 are cancelled, as their limitations have been imported into claims 1 and 14, respectively. Claims 8-13 depend from claim 1, and thus also are in condition for allowance over Childs et al. Claims 20-27 depend from claim 14, as amended, and thus are allowable for the same reasons.

The Examiner's written office action rejected claims 3-7 and 20-21 under 35 U.S.C. § 103(a) as being unpatentable over Childs et al. in view of Young, but did not specify a patent number for the patent to Young. In a subsequent telephone inquiry by Applicant, the Examiner indicated that the applied reference is U.S. Patent No. 3,181,513 to Young.

The rejection of claims 3-7 and 20-21 over Childs et al. in view of '513 to Young is earnestly traversed. Claims 3 and 20 recite that the "hydraulic motor" comprises "at least one pair of rotating pistons *in rolling contact to form a seal* to prevent fluids from flowing from a region of high pressure to a low pressure region within said hydraulic motor." (Emphasis added.) A careful review of the Young device reveals that Young's oscillating rotors are not in rolling contact. They are physically separated, each rotor being isolated in a respective chamber, i.e., rotor **100** oscillates within chamber **101**, rotor **200** oscillates within chamber **201**, rotor **300** oscillates in chamber **301**, and the like. But the individual rotors do *not* have any contact with each other, much less a "rolling contact to form a seal" between rotating pistons, as claimed. In lieu of Applicants efficient rolling seal, Young has to resort to frictional "sealing strips" (e.g. **106** and **206** in Fig. 1) and "end strips" (**107** and **207** in Fig. 1), which have been a serious drawback in all prior rotary engines such as Young's. For a complete disclosure of the "rolling contact seal" aspect of the present invention, please see U.S. Patent No. 6,401,686, granted to the present Applicant after this application was filed.

Because '513 to Young does not disclose "rotating pistons in rolling contact to form a seal to prevent fluids from flowing from a region of high pressure to a low pressure region," claims 3 and 20 recite patentable subject matter.

The rejection of claims 5, 6, 20, 22, and 23 is similarly traversed. Claims 5, 6, 20, 22, and 23 all recite "at least one pair of rotating pistons in rolling contact to form a seal to prevent fluids from flowing from regions of high pressure to low pressure regions . . ." or a close variant

thereof. Since neither Childs et al. nor '513 to Young disclose this limitation, these dependent claims all recite subject matter patentable over the applied art.

Claim 29 was rejected as being unpatentable under 35 U.S.C. § 103(a) over Childs et al. The rejection is respectfully traversed. Claim 29 recites an "expander" and a "condenser" and, importantly, "a recuperator in fluid communication with said condenser and with an exhaust outlet of said expander, wherein a working fluid liquid is preheated in said recuperator before flowing to said boiler." While Childs et al. disclose an expander and a recuperator, there is no teaching of a condenser having the relationship to the expander and recuperator as recited in claim 29. The rejection of claim 29 over Childs et al. thus is traversed, and claim 29 should be allowed without amendment. Claims 12 and 13, which depend from claim 1, also are allowable for the same reason.

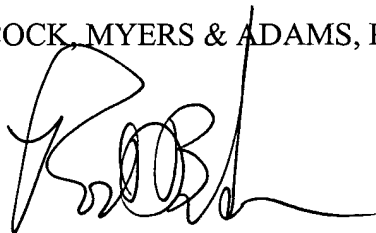
The Examiner indicated the provisional allowability of claims 15-18. The Examiner's suggestion has been adopted; claim 15 has been re-written in independent form to include all the limitations of its base claim, claim 14. Claim 15 as amended, and its dependent claims 16-18, thus are allowable.

Claims 3, 20, and 22 are amended solely to adjust their dependency. Claim 4 has a minor specifying amendment.

Expedited amendment, examination, and allowance is respectfully solicited. In the event the Examiner has any questions or suggestions to promote the allowance of the application, he or she is invited to call the undersigned.

Respectfully submitted,

PEACOCK, MYERS & ADAMS, P.C.

A handwritten signature in black ink, appearing to read 'Rod D. Baker', written over a horizontal line.

By: _____

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